

(19) World Intellectual Property
Organization
International Bureau



556 341

(43) International Publication Date
18 November 2004 (18.11.2004)

PCT

(10) International Publication Number
WO 2004/099682 A2

- (51) International Patent Classification⁷: **F24J**
- (21) International Application Number:
PCT/IL2004/000406
- (22) International Filing Date: 12 May 2004 (12.05.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
155876 12 May 2003 (12.05.2003) IL
- (71) Applicant (for all designated States except US): **RAMOT AT TEL AVIV UNIVERSITY LTD.** [IL/IL]; 32 Haim Levanon Street, 69 975 Tel Aviv (IL).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **KRIBUS, Abraham** [IL/IL]; 2 Smilanski Street, 76 447 Rechovot (IL). **LEVY, Nathan-Arie** [IL/IL]; 38 HaShchafim Street, 43 724 RaAnana (IL). **KAFTORI, Daniel** [IL/IL]; Moshav Alonei Abba, 36 005 Alonei Abba (IL).
- (74) Agent: **G.E. EHRLICH (1995) LTD.**; 11 Menachem Begin Street, 52 521 Ramat Gan (IL).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **SMALL-SCALE, CONCENTRATING, SOLAR CHP SYSTEM**

(57) Abstract: **ABSTRACT** A high-efficiency, small-scale, combined heat and power, concentrating solar energy system, designed specifically for residential and other relatively low-power applications, rendering it cost-effective and economically viable. Two-axis tracking of a dish-like reflector of between 1 and 2 meters in aperture ensures very high concentrating ratios of between 200 and 800 suns or even higher. In consequence very high coolant outlet temperatures, of 120 - 180 °C may be reached at the outlet of the collector coolant, which may be oil, gas, or pressurized water. The high coolant temperatures are advantageous because they may be used for air-conditioning. The high concentration is advantageous because the efficiency of the photovoltaic cells is improved with higher concentration. The overall efficiency is greater than 60 %. Additionally, a simple but accurate drive, designed as a radio-dial drive, with substantially zero backlash, and substantially zero drift, is provided for driving the concentrating solar energy system. Preferably, two radio-dial drives are employed and tracking is performed along two axes, of an azimuth-elevation mount, a polar mount, or a cross mount.

WO 2004/099682 A2